

Notice of Allowability

Application No.

09/577,478

Examiner

Paulos M. Natnael

Applicant(s)

HEATH, THOMAS S.

Art Unit

2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 7/7/04 and phone interview of 2-14-05.
2. ☒ The allowed claim(s) is/are 1,3-9,11-16,18-22,25 and 26, now renumbered as claims 1-16,19-21,17-18.
3. ☒ The drawings filed on 25 May 2000 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Randy A. Noranbrock on February 14, 2005.

The application has been amended as follows:

In claims **1,20, 21,22**, (at the end of each claim) add --determining a centroid for each detected region of interest in the video frames, comparing a determined centroid with a centroid of an adjacent video frame, if the difference between the compared centroids is below a preset error tolerance, setting a frame-to-frame distance offset based on said compared centroid difference; and, wherein the aligning includes aligning the interpolated video frame based on said set frame-to-frame offset --.

Claim **24** has been canceled.

In claim **25**, change "claim 24" --claim 1--.

In claim **26**, change "claim 24" --claim 1--.

Allowable Subject Matter

2. Claims 1,3-9,11-16, 18-22,25, and 26 are allowed.

3. The following is an examiner's statement of reasons for allowance: the prior art fails to disclose a computer-implemented method, computer architecture, article, and system (claims 1,20,21,22, respectively), of enhancing a video image in the following steps or order (the order of processing helps decrease the memory storage requirement and processing load needed to align the video frames, as Applicants argued in their Remarks): extracting a sequence of video frames, upsampling each of the video frames, interpolating the up sampled video frames, detecting at least one region of interest in the video frames, aligning the interpolated video frames using the detected at least one region of interest in the video frames, creating a single image from the aligned video frames, and further comprising determining a centroid for each detected region of interest in the video frames, comparing a determined centroid with a centroid of an adjacent video frame; if the difference between the compared centroids is below a preset error tolerance, setting a frame-to-frame distance offset based on said compared centroid difference; and, wherein said aligning step includes aligning the interpolated video frame based on said set frame-to-frame offset, as claims 1, 20, 21, and 22 now are amended to recite.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

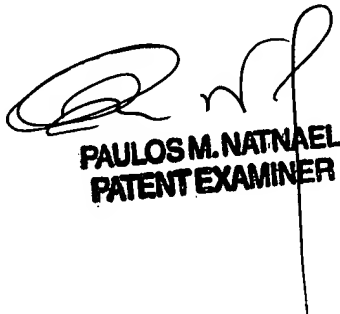
Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paulos M. Natnael whose telephone number is (703) 305-0019. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Miller can be reached on (703) 305-4795. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PMN
February 18, 2005


PAULOS M. NATNAEL
PATENT EXAMINER